

MIDDLE-MILE BROADBAND NETWORK COASTAL ZONE GUIDELINES FOR PROGRAMMATIC PERMITTING

California Department of Transportation

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TARGET AUDIENCE

This guidance is to support District Project Development Teams (PDTs) in complying with the [California Coastal Act](#) (Coastal Act), which mandates protection of coastal resources in California's coastal zone. Design and construction of the Middle-Mile Broadband Network (MMBN) should consider opportunities to avoid and minimize coastal resource and public access impacts associated with project components as described in this guidance including the fiber optic conduit path, installation methods, vaults, network hub shelters, and fiber optic markers. Where necessary, mitigation for coastal resource impacts may be required.

District Project Environmental Team staff are available to support PDTs through the assessment of environmental impacts of feasible design options and associated best management practices to avoid and minimize coastal resource impacts—ultimately supporting an efficient and programmatic permitting process for MMBN projects. A key initial ingredient for streamlining permits will be to bundle together each District's project segments that require Coastal Development Permits (CDPs) and work with the California Coastal Commission's and local government's staff to submit a consolidated permit application for processing.

This document covers suggestions for planning, siting, designing, and constructing the MMBN in ways to conform to Coastal Act policies. It is anticipated that there will be a clear reflection of the selected MMBN project design, along with any necessary permit conditions, within standard and non-standard special provision contract specifications for MMBN projects in the coastal zone.

INTRODUCTION

Environmental considerations for the Coastal Zone are provided in this document to avoid and minimize impacts to environmental resources protected by the Coastal Act ("coastal resources") and support a more streamlined coastal development permitting process for MMBN projects. Coastal resources include environmentally sensitive habitat areas (ESHAs); the marine

environment; coastal waters including wetlands, streams, estuaries, lakes, and the ocean; cultural resources; scenic and visual resources; and prime agricultural lands. The Coastal Act generally requires new development, which includes the scope of work of the MMBN project, to avoid or minimize impacts to coastal resources. The Coastal Act also requires new development to protect and enhance public coastal access and minimize risks to life and property in areas with environmental hazards such as fire zones, flood zones, geologic hazards, and areas subject to sea level rise. Relevant policies of the Coastal Act are provided in Appendix A at the end of this document.

In general, the coastal development permitting process can be streamlined by avoiding coastal resources or by ensuring that the development activities have no potential for any adverse effect, either individually or cumulatively, on coastal resources. Where it is not possible to fully avoid areas with coastal resources, or impacts to such resources, implementation of sensitive design options and best management practices (BMPs) as discussed below can help minimize impacts and support findings of consistency of MMBN projects with the Coastal Act. Mitigation may be required for any unavoidable temporary or permanent coastal resource impacts. Early and frequent coordination with District Project Environmental Teams and California Coastal Commission (Coastal Commission) staff is strongly recommended to identify opportunities for coastal resource protection and coastal development permit streamlining.

This document focuses on environmental impacts to coastal zone resources resulting from feasible design options and BMP options for MMBN project segments within the Coastal Zone for the purposes of streamlining the coastal development permitting process. It aims to facilitate the siting, design, and construction of MMBN projects to be consistent with Coastal Act policy requirements. Separately, but similarly, this guidance is also consistent with SB 156 requirements for CEQA exemptions as follows:

1. The project is constructed along, or within 30-feet of, the right-of-way of any public road or highway.
2. The project is either deployed underground where the surface area is restored to a condition existing before the project or placed aurally along an existing utility pole right-of-way.
3. The project incorporates, as a condition of project approval, measures developed to address potential environmental impacts.
4. The project shall be required to include monitors during construction activities and measures to avoid or address impacts to cultural and biological resources.

FIBER OPTIC CONDUIT PATH

For the fiber optic conduit path, the preferred siting from a coastal resource standpoint will be dependent on the location, the presence of coastal resources or coastal hazards, and the potential for impacts to those resources (including the potential need for mitigation). Determining these factors will heavily rely on discussions between District Project Environmental Teams, Coastal Commission staff, and other resource agencies as necessary. In general, placing conduit within the existing pavement footprint is most likely to avoid coastal resource impacts as construction would be occurring in a previously disturbed area and may reduce permitting requirements. Placing conduit as close to the edge of pavement as possible and/or in areas devoid of coastal resources as characterized in the March 25, 2022, Caltrans “Accommodation of Wired Broadband Facilities Within Access Controlled State Highway Right of Way” Memorandum also has the potential to avoid or reduce coastal resource impacts, as well as permitting complexities.

FIBER OPTIC CONDUIT INSTALLATION METHOD

Of the fiber optic conduit installation methods discussed in the MMBN Design Guidelines, the preferred option(s) from a coastal resource standpoint will depend on location, presence of coastal resources and environmental hazards, and the potential for coastal resource impacts. In general, in-pavement micro-trenching and horizontal direction drilling (also known as boring) have reduced environmental impacts in past broadband projects as compared to the other underground installation methods (e.g., plowing and trenching) due to their reduced disturbance to unpaved surfaces that may contain coastal resources. The following discussion addresses the potential impacts that the various installation methods can have on coastal resources, and best management practices (BMPs) for avoiding such impacts.

General BMPs that should be employed for programmatic permitting regardless of the installation method:

BIOLOGICAL AND CULTURAL BMPS:

1. As a general practice, ensure that biological and cultural resource awareness training with construction crews occurs prior to commencement of construction in or near such resource areas and that such training provides construction crews with relevant context on the requirements of the Coastal Act and any permit conditions of approval.
2. Prior to construction, as appropriate along focus segments, complete biological “clearance” surveys for sensitive species of nesting birds, amphibians, other wildlife, and rare plants as well as their habitat areas and flag off the boundaries of any identified nesting or breeding area, wetland, and any other type of ESHA with temporary construction

fencing, flags, or similar means. Exact installation locations or methods may need to be adjusted to avoid these areas accordingly.

3. Prior to construction, as appropriate along focus segments, complete cultural “clearance” surveys for sensitive archaeological and tribal resources and flag off the boundaries of any identified resource areas with temporary construction fencing, flags, or similar means. Exact timing for clearance surveys may need to be adjusted to ensure they occur during the appropriate time for plant, animal, or bird identification, such as during the blooming period of various rare plant species. Exact installation locations or methods may need to be adjusted to avoid any identified sensitive areas accordingly.
4. Ensure that tribal consultations are timely and coordinated with Coastal Commission staff. Absent a process specific to MMBN, refer to the November 2022 [Coastal Commission Memo: Tribal Consultation for Caltrans Projects](#) for provisions, and that results of those consultations inform appropriate BMPs for constructing in or near areas of known or potential cultural resources.
5. Avoid ground-disturbing activities in areas that contain known cultural resources to the extent feasible. Cultural monitoring should occur in areas of known or potential cultural resources if avoidance is not feasible. If cultural resources will be impacted, additional treatment measures such as data recovery may be required.
6. Per SB 156 Statutory Exemption requirements, projects must include monitors during construction. Refer to the [Standard Specifications](#), Section 14, for contract specifications associated with Environmental Stewardship and monitoring to ensure contractors meet permit requirements and other environmental commitments. Examples of Standard Specifications for inclusion within Section 14 include, but are not limited to, section 14-2.03A, “Archaeological Resources General,” section 14-2.03B “Archaeological Monitoring Area,” section 14-6.03D, “Contractor-Supplied Biologist,” section 14-6.03d(2), “Natural Resources Protection Plan,” and bid items “Contractor supplied biologist” (Item code 146001) and “Natural Resources Protection Plan (Item code 014424). On-site monitoring can significantly reduce the potential for impacts to coastal resources and associated mitigation requirements, as well as project delays, and is strongly recommended for all project segments where coastal resources may be present.
7. When required per the contract specifications, clean construction equipment prior to entering the work site to minimize the potential for the transport of non-native vegetation seeds and plant material.
8. Avoid impacts to tree roots by working around driplines of trees. Consult an International Society of Arboriculture (ISA) Certified Arborist for tree and root pruning.

9. If tree removal is unavoidable, contact the Caltrans District Landscape Architect for approval.

HAZARD AVOIDANCE BMPS:

1. Avoid areas that are highly vulnerable to flood hazards, coastal erosion, and sea level rise. Sea level rise is expected to cause increasingly frequent flood events, accelerated coastal erosion rates, and rising groundwater levels, which may affect operations and maintenance needs. The MMBN may need to be incorporated into future sea level rise adaptation projects for the state highway system and cannot be expected to rely on existing or future shoreline protective devices.
2. Avoid installing above-ground components in high fire hazard zones and below-ground components in areas with high liquefaction potential and seismic activity to the extent feasible.

ACCESS AND CIRCULATION BMPS:

1. Limit the area of temporary impacts (e.g., staging and storage) to areas authorized by the Engineer. Consult with Coastal Commission staff on locations of concern and how temporary and permanent impacts are defined and treated.
2. Implement a public access and traffic safety plan to ensure safe and continuous public access and traffic circulation through or detoured around active construction segments.

WATER QUALITY BMPS:

1. Avoid construction during or immediately following heavy rain events to prevent runoff pollution.
2. Implement erosion, runoff, and sediment control BMPs for coastal water quality protection. Erosion control netting should be loose-weave and made of natural fibers to avoid potential for wildlife entanglement and plastic pollution.
3. All ground disturbance that occurs outside of paved areas should be appropriately stabilized and revegetated following construction utilizing only regionally appropriate or locally grown or collected native plant seeds, excluding any species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or the State of California.
4. Ensure proper containment and disposal of any construction-related debris or hazardous materials.
5. Establish a plan for spill prevention and response measures.
6. For consistency with Stormwater Permit compliance, refer to Appendix G of the [MMBN Design Guidelines](#).

BAROTRAUMA EFFECTS ON AQUATIC SPECIES

Depending on site characteristics and proximity to water sources, the potential of any drilling or other construction activities to create barotrauma impacts on aquatic species should be assessed and a plan created for avoiding or minimizing those effects.

MITIGATION OF UNAVOIDABLE IMPACTS TO COASTAL RESOURCES

Mitigation for any temporary or permanent impacts to coastal resources may be necessary. Impacts to sensitive habitat are temporary only if the habitat will recover to its pre-impact condition and function within one year of disturbance. If recovery will take more than one year, the impacts are permanent. Depending on the circumstances, both temporary and permanent impacts may require mitigation. Following impact avoidance and minimization investigations, timely consultation between District Project Environmental and Landscape Architecture Teams and Coastal Commission staff should occur to determine whether, and at what ratios, mitigation may be necessary. Need for mitigation is determined by the type of resource being impacted, the size of the area being impacted, and the requirements of the Coastal Act or certified Local Coastal Program. Programmatic approaches to such mitigation may be explored.

IN-PAVEMENT MICRO-TRENCHING:

There are certain circumstances, including areas where the right of way contains highly sensitive resources or difficult geology or where the available right of way is too narrow to accommodate MMBN components, that in-pavement micro-trenching may be preferred. Consideration also should be given to the fact that in-pavement micro-trenching is the most likely installation method to avoid impacts and thereby simplify or avoid permit requirements. Within the coastal zone, this might include qualifying for a coastal development permit exemption or waiver when there are no sensitive coastal resources in close proximity, nor is there any potential to individually or cumulatively adversely affect such resources. Implementation of the applicable BMPs listed above is essential for avoiding individual or cumulative adverse impacts to coastal resources and obtaining a programmatic permit, waiver, or exemption.

HORIZONTAL DIRECTIONAL DRILLING:

Horizontal directional drilling (HDD) is another environmentally-preferable option as this installation method limits surface disturbance to areas of bore entry and exit pits and can allow for boring under rather than trenching through wetlands, streams, trees, and other ESHAs, as well as existing utilities and irrigation facilities. Coastal resource concerns associated with HDD primarily include the potential for discharge of excavated materials, drilling muds, fluids and other materials from construction activities; the potential for hydraulic fracturing (frac-out) to

impact coastal water quality or ESHAs; noise and vibration impacts to sensitive wildlife species that may occur in the project vicinity; vegetation impacts at bore entry and exit pits; trampling of sensitive wildlife or plant species during equipment mobilization; impacts to cultural resources during ground-disturbing activities outside of paved areas; and risk exposure to hazardous materials or environmentally hazardous areas.

BMPs to avoid or minimize these impacts include:

1. having a contingency plan or spill prevention plan in place to ensure swift and effective responses to any frac-outs or other fuel spills, including providing spill and frac-out equipment with each bore rig at all times during active drilling (refer to Appendix G: Stormwater Compliance in the [MMBN Design Guidelines](#) for consistency with Stormwater Permit Compliance)
2. implementing a soil and waste excavation and management plan to ensure proper drilling, stockpiling, and disposal procedures are followed throughout installation
3. identifying and avoiding drilling in any area with hazardous materials or high liquefaction potential
4. having a qualified biological and cultural monitor present throughout construction, as needed based on site conditions and resource proximity. Similar BMPs may be necessary for other installation methods.

TRENCHING:

Trenching involves potential impacts to coastal resources as it involves ground-disturbing activities outside of existing paved areas. Specifically, the trenching procedure and equipment may involve vegetation removal, noise disturbance to nearby wildlife species, ground-disturbing activities in environmentally or culturally sensitive areas, and water quality impacts from sediment runoff. Installation within previously disturbed areas that are devoid of coastal resources and implementation of the general BMPs listed above can help to avoid or minimize these coastal resource impacts. If there is any case where conduit must be installed through an environmentally or culturally sensitive area and alternative installation methods that would minimize impacts cannot be used, mitigation can be expected to be required for any temporary or permanent impacts.

PLOWING:

See trenching.

JACK AND DRILL:

See HDD.

AERIAL INSTALLATION:

The MMBN is planned for underground installation only. Under rare circumstances, with approval from CDT, aerial installation may be considered. Potential impacts from aerial installation include impacts to scenic and visual resources (e.g., obstruction of a protected view, location within a designed scenic area); exposure to environmental hazards (e.g., risks associated with location in a high fire hazard severity zone); and impacts to any vegetation, water resources, or cultural resources that must be removed or disturbed during construction.

BMPs for avoiding these potential impacts include using underground installation methods where feasible; or, where underground installation is not feasible or would cause greater environmental impacts, aerial installation should utilize existing utility infrastructure as available. Co-locating broadband cable with existing utilities on existing poles to the greatest extent feasible would be the first preference. Where new utility poles would be required, the following BMPs would help to avoid or minimize coastal resource impacts:

1. Limit the number of new poles and pole heights such that obstruction of any protected views and intrusion into any designated scenic areas is minimized to the extent feasible. Providing visual impact analyses such as project renderings and early coordination with the Coastal Commission will support efforts to minimize visual impacts.
2. Avoid areas that are subject to fire hazards, flood hazards, geologic and seismic hazards, and sea level rise to the extent feasible. If such areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize risks and support safe, on-going operations of the MMBN.
3. Avoid vegetation removal or surface water disturbance to the extent feasible. Where this is not feasible, ensure that a qualified biological monitor is present to identify and protect any sensitive wildlife or plant species, such as through pre-construction biological surveys.
4. Avoid and minimize surface disturbance activities where any cultural resources may be present.

STRUCTURE ATTACHMENT:

Structure attachment (i.e., installation on bridges) can avoid coastal resource impacts typically associated with ground-disturbing activities but has the potential to disturb sensitive wildlife such as nesting birds and roosting bats that may use the structure or the surrounding area for habitat. BMPs to avoid or minimize these impacts include avoiding installation during bird nesting and bat roosting seasons, conducting pre-construction surveys to identify any active nests or roosts, and providing a qualified biological monitor to assist in halting or adjusting construction activities to avoid wildlife impacts as necessary.

FIBER OPTIC MARKERS

Fiber optic markers have the potential for visual impacts as an above-ground component of the MMBN. To reduce visual impacts from the fiber optic markers, the Disk Marker is the preferred option. Opportunities to install fiber optic markers on pre-existing signs, guard rails, or other transportation system infrastructure should be utilized to further reduce the potential for visual impacts.

VAULTS

Placement of vaults must consider avoidance of protected coastal resources and environmental hazard areas. Specifically, consideration of vault spacing flexibility (i.e., less than the standard requirement of every 2,500 feet) is necessary for vaults in the following locations:

1. Inundated or Saturated Soils
2. Waters of the U.S. or State
3. Wetlands
4. Rivers / streams
5. Environmentally sensitive habitat areas
6. Presence of Cultural or Tribal Resources
7. Designated scenic areas
8. Protected visual resources
9. Prime agricultural soils
10. Areas with high fire, flood, geologic, or other environmental hazards, will be exacerbated by sea level rise

BMPs for avoiding or minimizing coastal resource impacts that may be caused by vaults include:

1. To the extent feasible, install vaults underground or flush with the ground within previously disturbed right-of-way areas. Where vaults must be above-ground, co-locate vaults with existing state facilities or infrastructure.
2. Avoid siting vaults within cultural resource areas, environmental hazard areas, and areas with prime agricultural soils. Siting vaults in areas subject to current or future flood and erosion hazards and sea level rise inundation may cause future operations and maintenance issues.
3. If hazard areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize hazards risks and support safe, on-going operations of the MMBN.
4. Provide qualified biological and cultural monitors during ground disturbing activities.
5. Consider aesthetic treatments such as colorization or screening to improve compatibility with the surrounding environment and community character. Consult with the Caltrans District Landscape Architect for recommendations on aesthetic treatments to address visual impacts.

For vaults proposed in or near wetlands, consult with the District Project Environmental Teams and Coastal Commission staff to determine if the vault is an allowed use within wetlands pursuant to the Coastal Act, options for relocating the vault with an appropriate buffer distance from wetlands (typically 100 feet), and whether mitigation may be necessary for any unavoidable impacts.

The Coastal Act requires the protection of ESHAs from any significant disruption of habitat values and only allows for uses that are dependent on ESHA resources; broadband is not such a use. Every effort should be made to site development such as vaults out of ESHAs because of these prohibitions, or more complicated permitting considerations and procedures will be triggered.

VAULTS MARKERS

Vault markers have the potential for visual impacts as an above-ground component of the MMBN network. To reduce visual impacts from the Vault Markers, the Disk Marker is the preferred option. Opportunities to install vault markers on pre-existing signs, guard rails, or other transportation system infrastructure should be utilized to further reduce the potential for visual impacts.

NETWORK HUB SHELTERS

Placement of network hub shelters must consider avoidance of protected coastal resources and environmental hazard areas. Advance consultations between Caltrans and Coastal Commission staff regarding the siting of network hub shelters in the coastal zone are strongly recommended. Specifically, consideration of network hub shelter spacing flexibility (i.e., within 5 miles of the proposed location) is necessary for network hub shelters that are proposed within or in close proximity to the following locations:

1. Inundated or Saturated Soils
2. Waters of the U.S. or State
3. Wetlands
4. Rivers / streams
5. Environmentally sensitive habitat areas
6. Presence of Cultural or Tribal Resources
7. Designated scenic areas
8. Designated scenic highways
9. Protected visual resources
10. Viewsheds from public beaches or trails
11. Prime agricultural soils
12. Areas with high fire, flood, geologic, or other environmental hazards, including those that will be exacerbated by sea level rise

BMPs for avoiding or minimizing coastal resource impacts that may be caused by network hub shelters include:

1. To the extent feasible, site network hub shelters within previously disturbed right-of-way areas and co-locate network hub shelters with existing state facilities or infrastructure, particularly those areas where electrical service is already available; this can both reduce environmental impacts and potential construction delays.
2. Site network hub shelters a minimum of 100 feet from any ESHA, wetland, and stream/riparian corridor.
3. Avoid siting network hub shelters within cultural resource areas, environmental hazard areas, and areas with prime agricultural soils. Siting network hub shelters in areas subject to current or future flood hazards, coastal erosion, and sea level rise inundation may cause future operations and maintenance issues. Network hub shelters must be sited to avoid the need for shoreline protective devices (e.g., seawalls, revetments) over the full design life of the infrastructure.
4. If hazard areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize hazards risks and support safe, on-going operations of the MMBN.
5. Provide qualified biological and cultural monitors during ground disturbing activities.
6. Every effort should be made to place network hub shelters outside of ESHAs, provide adequate buffers around those areas, and avoid any negative impacts to coastal public access. Consult with the Caltrans District Landscape Architect for recommendations on adequate buffers to address visual impacts.

Aesthetic treatments such as architectural styling, colorization and other design options for the fence, shelter structure, and any other above-ground infrastructure to match the surrounding community character should be considered. Providing visual impact analyses such as network hub shelter renderings and early coordination with Coastal Commission staff will support efforts to minimize visual impacts and speed the process for appropriately siting the facilities. Consult with the Caltrans District Landscape Architect to perform a visual impact analysis.

APPENDIX A: RELEVANT COASTAL ACT POLICIES

Relevant policies of the Coastal Act include, but are not limited to, the below. For complete and current Coastal Resources Planning and Management Policies, reference Chapter 3 of the [Coastal Act](#).

30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously

posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

30230. Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

30232. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

30244. Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

30253. New development shall do all of the following:

(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

(c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.

(d) Minimize energy consumption and vehicle miles traveled.

(e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.

30270. The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.